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EDITORIALS

Covid-19 and community mitigation strategies in a pandemic

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The covid-19 pandemic that was declared on 11 March 2020 has affected countries on all continents.¹ Reported case numbers are certainly underestimates given the shortages or unavailability of test kits in many countries, a virus with a basic reproductive value (R_0) of 2.2, and evidence of viral shedding from asymptomatic infected people.¹⁻⁴ In addition to suspending travel and efforts to reduce crowds, countries are taking unprecedented measures, including wartime strategies to enhance production of medical supplies in the US, the use of the national guard to restrict movement of people, and suspension of exports of medical products from certain countries (Saudi Arabia, India).⁵⁻⁸ Our challenge is to make the best use of available tools through systematic implementation by communities and countries to mitigate the exponential spread of covid-19.

Community mitigation

No specific drugs or vaccines are available, and health systems are overburdened everywhere. We have to rely on targeted, non-coercive, community interventions with sufficient transparency and public engagement and trust, and implement them urgently (box 1).⁹⁻¹¹ Such measures may help delay the exponential spread of the outbreak until drugs become available. Transparency and trust are critical to preserving a calm and compliant response to mitigation advice among the public.

Box 1: Key community mitigation strategies

- Cancellation of ad hoc events and suspension of events with superspreader potential
- Use of social distancing measures to reduce direct and close contact between people in the community
- Travel restrictions, including reduced flights and public transport and route restrictions without compromising essential services
- Voluntary home quarantine of members of household contacts
- Changes to funeral services to minimise crowd size and exposure to body fluids of the diseased
- Clear communication from national and international health authorities to ensure verified information and avoid fake news, rumours, and panic

Mass gatherings and events such as music festivals, religious gatherings, cultural celebrations, conferences, and political events should be restricted. Respiratory infections are most commonly transmitted at such events.¹² Even when the R_0 is low, the crowd density during mass gatherings predisposes to high rates of transmission. On 27 February 2020 Saudi Arabia suspended the year round Umrah pilgrimage, and the transmission of covid-19 in the country has been low.¹ This contrasts with Iran, which did not intervene in the religious pilgrimage in Qom and has seen large regional outbreaks. Organisers of other mass gatherings—including the 2020 Olympic Games, Dubai Expo 2020, and Hajj pilgrimage—will need to make decisions about risks and benefits.^{1 9-11 13}

Social distancing measures—decreasing the frequency and duration of social contacts among people of all ages—reduces person-to-person transmission of the virus. The closure of schools and universities, childcare facilities, religious services, entertainment venues, and other places where people congregate is an important such measure. Schools and daycare centres represent the most socially dense environment (3-5 m²/child) compared with offices (18 m²/person) or homes (36-44 m²/person).^{14 15}

Although current data do not indicate that children are especially susceptible to covid-19, adults who interact in school settings are at risk, and children with underlying conditions or those living in areas with high disease transmission rates may be carriers. School closures cannot be implemented without workplace level interventions, distance and remote learning, and school meal options for children in need.

Office space is another enabling environment for respiratory disease transmission. New shift work and rotation schedules seeking to decrease social density can minimise disease propagation. Telemedicine, video conferencing, telecommuting, and expanded leave policies may help staff adhere to social distancing policies.

Travel is the single most important contributor to disease transmission.² Absolute travel bans may increase fear and affect the travel of essential staff and the timely movement of supplies. Home deliveries of essential commodities may be feasible in some communities. Reduced frequency of transport (flights, trains) and route restrictions could be proposed, along with community sensitisation, aiming to reduce the demand for travel.

Institutional quarantining of people who have been in contact with confirmed or probable cases is unrealistic during pandemics as it overwhelms the system and may lead to more infections.¹⁶ Voluntary home quarantine reduces stress on the emergency healthcare system. Although family clusters of infections may occur, the numbers of affected people are likely to be far lower than in institutional settings. Telehealth concepts—including virtual urgent care centres—could be expanded to triage people quarantined at home.

In many countries and some communities, funerals are conducted in the homes of those who died; this was a key determinant of the Ebola outbreak.¹¹ Given the role of body fluids in viral transmission, and because of crowding during funerals in some settings, new guidelines on funerals are required.¹¹ Early risk communication strategies may help improve adherence among the population.

Timing

Some countries have already implemented community mitigation measures. Country specific timing is a critical determinant of their impact. Studies on travel restrictions in China for covid-19² and anecdotal evidence from the 1918 influenza pandemic in the US cities of Philadelphia and St Louis show the importance of early action in delaying outbreaks.¹⁰ Slowing down the spread to manageable levels will help medical staff to provide adequate care to infected patients and maintain social order. It will also mitigate burnout among healthcare providers and delay potential virological and immunological changes of the pathogen. Appropriate action in individual communities and countries can benefit the entire world.

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